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## UNIQUENESS AND COLLECTION OVERLAP IN ACADEMIC LIBRARIES

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### Abstract

With fewer dollars to spend on library materials in today's economic climate, how can we ensure that libraries are building diverse collections? This study uses Spectra Dimension to compare the uniqueness of holdings in three different types of academic libraries over a nine-year period: a subset of Association of Research Libraries, a subset of liberal arts college libraries, and a subset of member libraries from the Colorado Alliance for Research Libraries. In addition, groupings of libraries that are unconnected but similar are also created and analyzed for collection overlap. By analyzing duplication across these different clusters and types of libraries, this study will provide insight into previous collecting patterns and possible directions to take in today's necessary era of shrinking budgets.

### Introduction

Uniqueness of materials has long been a point of interest for academic libraries. An institution that holds both a core set of common titles and a substantial number of unique monographs that represent the research and teaching interests on campus is the holy grail of many collection development librarians. Frequently this goal can only be accomplished in concert with other libraries, particularly those that participate in a consortium together. However, does cooperation in a consortium truly provide diversification of library monographs?

This study uses Spectra Dimension's collection analysis tool to assess the amount of uniqueness and collection overlap within different types of academic libraries. Three types of libraries are analyzed including a subset of Association of Research Libraries, a subset of liberal arts college libraries, and a subset of member libraries from the Colorado Alliance for Research Libraries. Additionally, clusters were created of unconnected yet similar libraries as a comparison point to pre-established consortia among the groupings listed above. This study looks at multiple dimensions of each library collection by analyzing the degree of collection overlap based on Library of Congress class and publication date.

### Literature Review:

In 1995 Anna Perrault identified a decline in the acquisitions rates of 72 ARL libraries for non-serial imprints during the period 1979-1989. Although worldwide book production and prices were on the increase during this period, book budgets and their corresponding buying power were generally in decline. Perrault also found a steep decline in the acquisition of foreign language materials and a corresponding decrease in the number of unique titles held for many subject disciplines. With an increased concentration on core materials, the overall stock held by the libraries was more homogeneous and less diverse. This lack of diversity among collections has serious implications for future scholars.

Many have wondered if the widespread use of approval plans has contributed to this documented decline in collection diversity. Kim Armstrong and Bob Nardini wondered if cooperative collection development plans had a detectable effect on collection diversity. In their study of three libraries in a four-member consortium with a 50 year history of cooperative collection building, 88% of the titles acquired were purchased by two out of the three libraries studied. When firm and approval orders were compared, the authors found that a high percentage of the overlap was caused by firm orders. While the coordinated approval plans reduced collection overlap, the gains in the percentage of unique titles held were negated by firm orders.

How do libraries lacking in formal mechanisms for cooperative collection development fare? Rob Kairis studied a sample of the holdings in the OhioLink Central Catalog and found a high level of duplication. Furthermore about 70% of the duplication was in excess of the demonstrated need, as measured by circulation, for individual titles. Over time the excess duplication tended to increase as demand for these duplicated titles decreased. Kairis speculated that money saved from excess duplication could be used to buying a more diverse selection of materials.

In a 1996 study Bob Nardini et al analyzed collection overlap from approval plan shipments in two ARL libraries as compared to the overlap in two medium-sized libraries. Interestingly they found that the smaller libraries actually showed only a 23 percent rate of duplication, while the ARL libraries overlapped on 51 percent of their acquired approval plan titles. When comparing all four libraries' approval plan acquisitions, duplicate titles represented a mere six percent. However when looking at titles acquired in class E American History, the duplication of approval plans rose to 16 percent, perhaps suggesting a greater degree of agreement on core titles within American History.

## **Data Source**

The dataset used for this study was pulled from Library Dynamics' Spectra Dimension product, which combines holdings and circulation data for monographs held by its 45 participating libraries. The libraries involved in Spectra Dimension range from small liberal arts colleges to large ARL institutions, some of which operate within various consortia. Using extracted bibliographic and item records for titles published since 1999, Spectra Dimension creates one record for each title, lending itself to a great deal of collection assessment. Not only can it be used to analyze holdings and circulation across different types of institutions, but it also allows participants to drill down and access data based on Library of Congress (LC) classification levels.

For this study, data was pulled from libraries in pre-existing consortia as well as groups of similar but unconnected libraries.

## **The Data**

### ***Liberal Arts Colleges***

In this study, we compared the holdings of seventeen libraries in ten different groups to get a sense of relative uniqueness and overlap of collections. The first sets of comparisons were conducted within and between two three-member consortia of liberal arts schools and two unconnected groupings of similar liberal arts schools. Institutions are not identified by name in this study.

The liberal arts consortia, Liberal Arts Consortium A and Consortium B, each consist of three small liberal arts colleges with a long history of intra-consortial cooperation. Since these libraries have actively cooperated in building shared consortial collections, one would expect them to have built relatively unique individual collection in order to build the broadest possible shared collection. We have compared these consortia to two different pairings of liberal arts colleges that do not have any history of cooperative collection building. The first of these groups, Liberal Arts Group A, consists of the largest member – in terms of collection size – from each of the two consortia along with another liberal arts school with a similar profile in terms of size and academic quality. Liberal Arts Group B – which was constructed with the most unique collections from Consortium A and Consortium B – shares two members with Liberal Arts Group A (Liberal Arts 1 and Liberal Arts 7) but Liberal Arts 4 has replaced Liberal Arts 6 from Consortium B. **See Slides 6-7.**

We have measured uniqueness and overlap in a number of different ways. In Slides 6-7, the second column represents the number of titles each institution has added over the period covered by Spectra Dimension. The next column shows the number of unique titles within the shared collection held by that library. This is followed by a column showing the percentage of unique titles within the shared collection held by that library. After this comes a column showing the percentage of titles in the local collection that are not owned by anyone else in that group. We have made several interesting observations about the liberal arts data. Perhaps most interesting, and surprising, is the fact that the unconnected groups of libraries do about as well as Consortium B in controlling duplication across collections and do better than Consortium A. This observation seems to hold true no matter how the data are considered. When looking at the rate of overlap across two or more libraries in the consortium, Consortium B performs the best, with a 27.85% overlap rate. The two unconnected liberal arts groups have overlap rates of 28.44% and 29.79%. Consortium A has a rate of overlap of 34.25% - much higher than the other consortium or either group.

In terms of percentage of titles that are unique at a particular library within each group, the same pattern holds true: Consortium B performs best with an average uniqueness for each collection of 24.05%. This is followed closely by 23.40% and 23.85% in the unconnected groups. Consortium A lags behind at 21.92%.

Similarly, when comparing the percentage of each local collection that is unique, Consortium B performs best, with an average of 55.22%. This is followed by 51.61% and 52.48% in the unconnected groups. Consortium A again lags behind at 45.64%.

There could be a number of reasons behind these differences and some of these may be related to decisions to duplicate intentionally – factors that we intend to explore further. Some of the reasons behind this may have to do with size of the group or size of each library collection within the group. Consortium A has 121,319 titles represented in this data set, while the other three groups have between 150,000 and 155,000 titles. This difference in overall collection size may explain the greater duplication within Consortium A. Perhaps this group is purchasing a small enough selection of titles that they necessarily overlap on a greater percentage of titles.

### ***Comparisons Within a Larger Consortium***

We have gathered similar holdings data for several sets of libraries within a larger consortium – the Colorado Alliance of Research Libraries. In order to allow comparison with the three-member liberal arts consortia, we have grouped these schools into groups of three, in descending order from largest to smallest collection. In several cases, we have included a

particular school in more than one comparison set. **See Slides 11-12.** We have also created two sets of comparison schools that are not consortial partners. **See Slide 13.**

The thing that is immediately striking about the largest group of schools within this consortium is the high degree of overlap – 51.59% for the group that consists of two ARL institutions and the next largest doctoral granting school. These, too, are libraries that have attempted to build collections cooperatively, yet even with much greater buying power than the liberal arts schools, these research libraries have bought many of the same titles. This figure is higher even than the 43.38% rate for the group of three ARL libraries (two of which are part of this consortium). These large research institutions duplicate each other's collections at a higher rate than do the small liberal arts schools.

There seems to be some connection between the overall shared collection size and overlap – the larger collections have greater overlap than the smaller collections. But there appears to be a greater correlation between range of size between the smallest and largest collections in the group and the overlap rate. The group with the greatest range between the smallest and largest collections is the set of ARL and doctoral schools represented in the first table on slide 11. With a range of 139,933 titles between Doctoral 1 and ARL 3, this group has an overlap rate of 51.59%. However, this connection is not constant; it appears that range of collection size in a group of comparison schools, combined with overall shared collection size has some connection to the rate of overlap. The smaller groups overlap at a lower rate, even when they have a larger range between collections. **See Slides 14-15.** Similar observations can be made for relative uniqueness of collections. **See Slides 16-17.**

With the schools in these comparison sets, local collection size (as represented in the data sets used in this study) does appear to make a difference. In all but one case, the largest collection in the three-library set is the most unique when compared to the shared collection. The only exception to this is in the case of the ARL/Doctoral Group, in which the difference in size between the two largest collections is just 12,104 titles and the difference in uniqueness is only 0.74%. In all six groups, the smallest collection is the least unique. In five of six cases, highest percentage of unique titles within a local collection is at the largest library and in five of six cases the opposite is true, with the smallest library having the lowest percentage of unique titles in its local collection.

### ***Subject Analysis: American History***

As we consider collection overlap and uniqueness, it is important to think about differences between subjects. Some subjects may naturally lend themselves to greater duplication than others, so analysis at only the broad collection level may miss some important patterns. The following analysis looks only at one subject – American History (Library of Congress Class E) to provide an example of how this analysis will be conducted. American History is taught at almost every institution, and is therefore collected widely. It is also a discipline in which the book is very important. It is important to note, however, that we plan to conduct similar analysis of all disciplines.

As above, we compared the liberal arts schools with one another. Unlike above, we have used some different comparative criteria. **See Slides 19-20.** In these tables, the second column shows the number of titles in LC Class E included in this data set. The third column shows overlap with the base collection – in this case, whichever library is listed first. Obviously, the figures in this column will vary depending on which library is chosen as the base institution. The next column – percent of unique titles – shows the percentage of titles within the shared

collection that are unique to that library. The last two columns show overlap of the base collection. "Unique to base" is the percentage of titles in the base library collection that are not held by another library. "Base plus one" and "base plus two" show the percentage of the base library's collection held by one or more partner libraries.

As above, Consortium B performs better than Consortium A with the greatest uniqueness and least overlap. The two unconnected groups lie somewhere in the middle, but closer to Consortium B.

**Slides 23-25** show the same measurements for groups of schools within Consortium C (The Colorado Alliance). **Slide 26** corresponds to slide 13 above – the ARL and Doctoral groups outside of a consortium. As above, it appears that the larger research libraries are not as unique as one might expect, with rates of overlap at all three libraries ranging from 46.66% up to 74.23%. The smaller schools overlap at a lower rate.

## Conclusion

It appears that consortial agreements to build collections cooperatively do not lead to decreased duplication. Both in the groups of liberal arts schools and in the research libraries, libraries that have worked together for many years still overlap each other's collections at a high rate. Though a number of contextual factors need to be considered, the data suggest that groups of libraries that do not work together do about as well at building diverse collections as do consortia that formally build collections together.

It also appears that large research libraries are duplicating each other's collections at a high rate. Measurement of use of these materials would help to show whether this rate of duplication is necessary and whether research libraries could make more of an effort to build a stronger shared national collection.

## Future Steps

As mentioned above, we intend to do a detailed comparison of overlap and uniqueness at the subject level. We also plan to compare subject overlap with usage rates in order to determine whether libraries are duplicating collections at a rate that makes sense.

We also plan to survey each library for which we have collection holdings and usage data to determine their collecting patterns and other factors that may have led to increased or decreased duplication.

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